PHYCOLOGIA

VOLUME 14

1975

PUBLISHED BY BLACKWELL SCIENTIFIC PUBLICATIONS
FOR THE INTERNATIONAL PHYCOLOGICAL SOCIETY

PHYCOLOGIA

Published quarterly by the International Phycological Society

Editor

Kathleen M. Cole, Department of Botany, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5 (1975–1977; second term)

Board of Associate Editors

J. D. Dodge, Department of Botany, Birkbeck College, Malet St, London W.C.1, England (1975–1977; second term)

Robert F. Scagel, Department of Botany, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5 (1975–1977; second term)

Francis R. Trainor, Biological Sciences, University of Connecticut, Storrs, Connecticut 06268, U.S.A. (1975–1977; second term)

A. Cardinal, Departement de Biologie, Université Laval, Québec 10a Québec, Canada.

Board of Editorial Advisors

Y.-M. Chiang, Institute of Oceanography, National Taiwan University, P.O. Box 6013, Taipei, Taiwan, Republic of China.

P. S. Dixon, Department of Population and Environmental Biology, University of California, Irvine, California 92664, U.S.A.

S. C. Ducker, Botany Department, University of Melbourne, Parkville, N.2, Victoria, Australia.

J. Feldmann, Laboratoire de Biologie Végétale Marine, 7 Quai Saint-Bernard, Paris V, France.

R. A. Lewin, Scripps Institution of Oceanography, University of California, La Jolla, California 92037, U.S.A.

J. W. G. Lund, Freshwater Biological Association, The Ferry House, Far Sawrey, Ambleside, Cumbria, England.

Y. Nakamura, Institute of Algological Research, Hokkaido University, Muroran, Hokkaido, Japan.

INTERNATIONAL PHYCOLOGICAL SOCIETY

Dedicated to the promotion of phycology and to the encouragement of international cooperation among phycologists and phycological institutes.

Officers for 1975

(with terms of membership in the Executive Council)

President: J. D. Dodge, Department of Botany, Birkbeck College, Malet St, London W.C.1, England (1974–1976; second term)

Secretary: Sylvia Earle, California Academey of Sciences, Golden Gate Park, San Francisco, California 94118, U.S.A. (1975–1977; first term)

Treasurer: J. McLachlan, Atlantic Regional Laboratory, 1411 Oxford St, Halifax, Nova Scotia, Canada B3H 3Z1 (1973–1975; first term)

Other Members of the Executive Council

T. Christensen, Institut for Sporeplanter, Oster Farimagsgade 2 D, DK-1353 Copenhagen, Denmark (1975–1977; second term; President, 1972)

Kathleen M. Cole, Department of Botany, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5 (as Editor of *Phycologia*, 1975–1977; second term)

Sophie C. Ducker, Botany Department, University of Melbourne, Parkville, N.2, Victoria, Australia (1975–1977; second term)

B. Fott, Benátská 2, 128 01 Praha 2, Czechoslovakia (1973–1975; second term)

R. R. L. Guillard, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543, U.S.A. (1975–1977; second term)

M. Kurogi, Department of Botany, Faculty of Science, Hokkaido University, Sapporo 060, Japan (1973–1975; first term)

F. Magne, Laboratoire de Cryptogamie, Université de Paris, 7, Quai Saint-Bernard, 75–Paris (5e), France (1974–1976; second term; President, 1973)

Contents

VOL. 14, NO. 1, MARCH 1975

R. C. Tuttle and A. R. Loeblich, III. An optimal growth medium for the dinoflagellate *Crypthecodinium cohnii*. 1

Rosalia Liso and Guiseppe Calabrese. Research on ascorbic acid physiology in red algae. 3. Lycorine–ascorbic acid interaction in growth control . . 9

Robert R. L. Guillard, Harold C. Bold and Frank J. MacEntee. Four new unicellular chlorophycean algae from mixohaline habitats 13

Maria Grilli Caiola. A light and electron microscopic study of blue-green algae growing in the coralloid-roots of *Encephalartos altensteinii* and in culture 25

William J. Cooke. The occurrence of an endozoic green alga in the marine mollusc, *Clinocardium nuttallii* (Conrad, 1837) 35

Eiji Takahashi. Studies on genera *Mallomonas* and *Synura*, and other plankton in fresh water with the electron microscope. IX. *Mallomonas harrisae* sp. nov. (Chrysophyceae) 41

F. J. R. Taylor. Non-helical transverse flagella in dinoflagellates (Note) . 45

Obituary 49

Announcements 53

VOL. 14, NO. 2, JUNE 1975

W. H. Adey and J. Michael Vassar. Colonization, succession and growth rates of tropical crustose coralline algae (Rhodophyta, Cryptonemiales) . . 55

Ralph A. Lewin. A *Chlamydomonas* with black zygospores 71

Betty Moss. Attachment of zygotes and germlings of *Ascophyllum nodosum* (L.) Le Jol. (Phaeophyceae, Fucales) 75

J. Rueness and M. Rueness. Genetic control of morphogenesis in two varieties of *Antithamnion plumula* (Rhodophyceae, Ceramiales) 81

T. H. Mague and O. Holm-Hansen. Nitrogen fixation on a coral reef . . 87

Llewellya Hillis-Colinvaux. *Halimeda renschii* revived, and *Halimeda batanensis* (Chlorophyta, Siphonales) 93

PHYCOLOGICAL REVIEWS 2

Vernon W. Proctor. The nature of charophyte species 97

Elsie Conway, E. G. Young and Betty Moss. VIIIth International Seaweed Symposium (Note) 115

J. D. Dodge. 2nd International Symposium in Phycology: Taxonomy of Algae (Note) 119

Book review 121

Announcements 123

VOL. 14, NO. 3, SEPTEMBER 1975

Patricia A. Archibald. *Trebouxia* de Pulmaly (Chlorophyceae, Chlorococcales) and *Pseudotrebouxia* gen. nov. (Chlorophyceae, Chlorosarcinales) . . 125

E. K. Ganesan. Studies on the marine algal flora of Venezuela. VI. *Cryptonemia delicatula* subsp. *venezuelensis* subsp. nov. (Rhodophyta, Cryptonemiales) 139

Carlos E. M. Bicudo. Polymorphism in the desmid *Arthrodesmus mucronulatus* and its taxonomic implications 145

Ralph A. Lewin and Lanna Cheng. Associations of microscopic algae with didemnid ascidians 149

Ralph A. Lewin. A marine *Synechocystis* (Cyanophyta, Chroococcales) epizoic on ascidians 153

E. K. Ganesan and John A. West. Culture studies on the marine red alga *Rhodophysema elegans* (Cryptonemiales, Peysonneliaceae) . . . 161

Francis R. Trainor. Is a reduced level of nitrogen essential for *Chlamydomonas eugametos* mating in nature? 167

Bohuslav Fott. *Prasadiella indica* Srivastava 1974—a superfluous synonym for *Gloeodendron ramosa* Korsikov 1916 (Note) 171

Announcements 173

VOL. 14, NO. 4, DECEMBER 1975

L. Elliot Shubert. *Scenedesmus trainorii* sp. nov. (Chlorophyta, Chlorococcales): a polymorphic species 177

D. V. Subba Rao. *Planktoniella sol* (Wallich) Schütt, (Bacillariophyceae, Coscinodiscaceae), a new record for north-western Atlantic coastal waters 183

Margaret N. Clayton. A study of variation in Australian species of *Colpomenia* (Phaeophyta, Scytosiphonales) 187

Philip Sze. Possible effect of lower phosphorus concentrations on the phytoplankton in Onondaga Lake, New York, U.S.A. 197

E. Paasche, S. Johansson and D. L. Evensen. An effect of osmotic pressure on the valve morphology of the diatom *Skeletonema subsalsum* (A. Cleve) Bethge 205

Ronald W. Hoham. The life history and ecology of the snow alga *Chloromonas pichinchae* (Chlorophyta, Volvocales) 213

Lynda J. Goff and Kathleen Cole. The biology of *Harveyella mirabilis* (Cryptonemiales, Rhodophyceae). II. Carposporophyte development as related to the taxonomic affiliation of the parasitic red alga, *Harveyella mirabilis* . 227

Kathleen Cole and Elsie Conway. Phenetic implications of structural features of the perennating phase in the life history of *Porphyra* and *Bangia* (Bangiophyceae, Rhodophyta) 239

K. A. Lee and C. L. Kemp. Microspectrophotometric analysis of DNA replication in *Eudorina elegans* (Volvocales, Chlorophyta) 247

John D. Dodge. A survey of chloroplast ultrastructure in the Dinophyceae . 253

Ben A. Silverberg. Ultrastructural localization of lead in *Stigeoclonium tenue* (Chlorophyceae, Ulotrichales) as demonstrated by cytochemical and X-ray microanalysis 265

E. M. Gordon-Mills and E. L. McCandless. Carrageenans in the cell walls of *Chondrus crispus* Stack. (Rhodophyceae, Gigartinales). I. Localization with fluorescent antibody 275

Grethe R. Hasle and Dale L. Evensen. Brackish-water and fresh-water species of the diatom genus *Skeletonema* Grev. I. *Skeletonema subsalsum* (A. Cleve) Bethge 283

John H. Yopp. Characterization of the respiratory metabolism of the charophyte *Nitella acuminata*. I. Considerations of the injury, ontogenetic status, and presence of polyphenol and glycolate oxidizing enzymes . 299

George F. Papenfuss and Mitsuo Chihara. The morphology and systematic position of the green algae *Ernodesmis* and *Apjohnia* 309

PHYCOLOGICAL REVIEWS 3

C. van den Hoek. Phytogeographic provinces along the coasts of the northern Atlantic Ocean 317

Fay Kenoyer Daily. A note concerning calcium carbonate deposits in charophytes (Note) 331

Book Review 333

Announcements 335

Author Index for Volume 14 337